

REMARKS

The Examiner is thanked for the courtesy of the interview that occurred on November 30, 2004. As discussed therein, the outstanding rejections are respectfully traversed as applied to the currently pending claims.

Rejections under 35 USC 112

Initially, several of the claims were rejected under 35 USC 112, second paragraph asserting that the wire bonding landings are not exposed. This rejection is respectfully traversed. With respect to claims 1 and 11, the claims relate to “a **substrate panel** for use in semiconductor packaging.” In the outstanding 112 rejections, the position appears to be that since the substrate panel is intended for eventual use in a semiconductor package, that the wire bonding landings would likely not be exposed in the final package. Although it is acknowledged that in many if not most implementations, the top surface of the substrate panel would not be exposed in a final package, it is respectfully submitted that this fact is not pertinent to the definiteness of the rejected claims. Claims 1 and 11 relate to the **substrate panel**, and as acknowledged by the Examiner, the wire bonding landings are exposed on the top surface of the substrate panel. Accordingly, it is respectfully submitted that the 112 rejections of claims 1 and 11 should be withdrawn for at least this reason.

Claim 15 is directed to a package. However the language in claim 15 merely points out that the wire bonding landings are exposed on a top surface of the **substrate**. Nothing in claim 15 suggests that the wire bonding landings must be exposed on the exterior part of the claimed package. Accordingly, it is respectfully submitted that the 112 rejection of claim 15 should be withdrawn for at least this reason.

Rejections under 35 USC 102

Claims 1, 2, 4, 5, 7, 9, 11, 12, 14, 15, 17, 19 and 22 were all rejected as being anticipated by Huang. These rejections are respectfully traversed both with respect to the claim language as originally filed and the claims as amended herein.

As originally filed, independent claims 1, 11 and 15 each required that the lead frame include: (a) a plurality of contacts; (b) a plurality of wire bonding landings; and **lead segments that electrically couple selected wire bonding landings to associated contacts**. It is respectfully submitted that Huang does not disclose such a structure. Specifically, the outstanding rejection identifies component 104 (i.e., the leads 104) as corresponding to the lead segments. However, the rejection appears to rely on those same leads as constituting the contacts. It is respectfully submitted that since the bottom surfaces of the cited leads 104 act as the contacts, the Examiner has not identified (and Huang does not disclose) the use of lead segments that electrically couple wire bonding landings to associated contacts. In view of the

foregoing, it is respectfully submitted that a prima facie case of anticipation has not been made in this case and that the outstanding rejections of all of the pending claims should be withdrawn for at least this reason.

Claims 2, 11 and 17 as originally filed specifically required that the top surface of the dielectric material (or first dielectric layer in the case of claim 17) be substantially co-planar with the top surface of the substrate and the **wire bonding landings**. Independent claims 1 and 15 have been amended to include these limitations. It is respectfully submitted that Huang does not disclose such a structure. Rather, as clearly shown in Figure 3 of Huang, the molding compound 124 (which the Examiner has identified as corresponding to the claimed dielectric material) clearly forms side wall structures that extend well above the lead frame structures. Accordingly, it is respectfully submitted that the original rejections of claims 2, 11 and 17 were improper for at least this reason as well. Since this language has now been incorporated into independent claims 1 and 15, it is respectfully submitted that all of the claims are patentable over the Huang reference for at least this reason as well.

It is noted that in the interview, the Examiner suggested that since parts of the molding compound 124 utilized by Huang appear to be substantially co-planar with the top surface of the lead frame, that somehow the Huang structure reads on the cited claim language. Such an assertion is respectfully traversed. The claims clearly require that the top surfaces of the substrate, the lead frame and the dielectric material are all substantially co-planar. The principle goal of Huang appears to be to create the sidewalls. Accordingly, it is respectfully submitted that the sidewalls cannot simply be ignored when attempting to read the structures disclosed by Huang on the claims presented in the present application.

Claims 3-10, 12-14, 16 18-23 and 31-35 each depend either directly or indirectly from one of the independent claims 1, 11 or 15 and are therefore respectfully submitted to be patentable over the art of record for at least the same reasons as set forth above with respect to the independent claims. Additionally, these dependent claims require additional elements that when considered in the context of the claimed invention, further patentably distinguish the art of record. For example, claim 4 requires that the lead segments NOT be exposed on the bottom surface of than the substrate panel. The outstanding rejection identified leads 104 of Huang as corresponding to the recited lead segments. Although that position is respectfully traversed, as described above, it is noted that leads 104 are exposed on the bottom surface of the substrate and thus would not meet the language of claim 4 for at least this reason as well. Accordingly, it is respectfully submitted that the outstanding rejection of claim 4 should be withdrawn for at least this reason as well.

Claims 5 and 11 both require that the device areas are arranged in at least one two dimensional array. The outstanding rejection asserts that Fig. 10 of Huang meet this claim feature. This assertion is respectfully traversed. Fig. 10 of Huang shows a lead frame having single row (i.e., a one dimensional array) of device areas. In contrast, Figs. 3A and 3B of the present application illustrate the claimed two dimensional arrays of device areas. Accordingly, it is respectfully submitted that the outstanding rejection of claims 5 and 11 should be withdrawn for this reason as well.


Rejections under 35 USC 103

A few of the claims were rejected under section 103 based upon combinations of the Huang references and either Lee or Chein-Hung. These rejections are respectfully traversed for at least the reasons set forth above with respect to claim 1. Additionally, these dependent claims require additional elements that when considered in the context of the claimed invention further patentably distinguish the art. By way of example, claim 6 requires a matrix of tie bars positioned between adjacent device areas that are configured to support the lead segments. The Examiner points to tie bars 4 of Fig. 11 of Lee to support this assertion. However, the tie bars 4 are not arranged in a matrix as required by claim 6. Additionally, as can best be seen in Figures 7 and 10 of Lee, the tie bars 4 are arranged to support the die attach pad. They are **not** arranged to carry lead segments of the nature recited in the present application. Accordingly, it is respectfully submitted that nothing in the Lee reference would motivate one to alter the device disclosed by Huang in a manner that would read on claim 6. Accordingly, the rejection of claim 6 should be withdrawn for this additional reason as well.

Conclusions

New claims 31-35 have been added. These claims further distinguish the art of record and are fully supported by the application as originally filed. By way of example, Fig. 3 shows the claimed microarray structure and Fig. 5 shows the claimed relative dimensions of the wire bonding landings and lead segments.

In view of the foregoing, it is respectfully submitted that all pending claims are patentable over the art of record and that this case is now in condition for allowance. Should the Examiner have any remaining concerns regarding the present application, he is encouraged to contact the undersigned at the telephone number set out below.

Respectfully submitted,
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